

Amendments to the Claims

1 – 11. (Cancelled).

12. (New) A cladding plate for a microwave antenna, the cladding plate comprising:

a plate;

a recess formed in the plate and extending radially towards a peripheral edge of the plate from a thinnest point of the plate such that a thickness of the plate increases radially from the thinnest point in proportion to

$$\frac{1}{\sqrt{1 - (\varepsilon_R + a/r^2)^{-1}}}$$

wherein r is a radial distance from the thinnest point;

wherein ε_R is the dielectric constant of the plate material; and

wherein a is a positive constant.

13. (New) The cladding plate of claim 12 wherein the recess is milled into the plate to form a thickness profile of the plate.

14. (New) The cladding plate of claim 13 wherein the thickness profile of the plate increases stepwise from the thinnest point of the plate.

15. (New) The cladding plate of claim 14 wherein a height of a step in the thickness profile is less than $100\mu\text{m}$.

16. (New) The cladding plate of claim 12 wherein the plate comprises a homogeneous material.

17. (New) The cladding plate of claim 12 wherein the plate comprises a plurality of sections.

18. (New) The cladding plate of claim 17 wherein each section contacts each of the other sections at the thinnest point of the plate.

19. (New) An antenna assembly comprising:

a microwave antenna;

a cladding plate configured to intersect a beam emitted by the microwave antenna,

the cladding plate having a thickness d that increases with a distance r from a thinnest point of the cladding plate; and

the microwave antenna being located at a distance from the cladding plate, the distance being measured along a surface normal from the thinnest point of the cladding plate.

20. (New) The antenna assembly of claim 19 wherein the thinnest point of the cladding plate has a thickness given by:

$$d_{\min} = \frac{m}{2} \frac{\lambda_0}{\sqrt{\epsilon_R}}$$

wherein m is an integer;

wherein λ_0 is an operating wavelength of the microwave antenna in a vacuum; and

wherein ϵ_R is the dielectric constant of a material that comprises the cladding plate.

21. (New) The antenna assembly of claim 20 wherein the cladding plate has a maximum thickness given by:

$$d_{\max} < \frac{m}{2} \frac{\lambda_0}{\sqrt{\epsilon_R - 1}}.$$

22. (New) The antenna assembly of claim 19 wherein the thickness of the cladding plate increases with the distance r proportional to:

$$\frac{1}{\sqrt{1 - (\epsilon_R + a/r^2)^{-1}}},$$

wherein $a = \epsilon_R D^2$;

wherein r denotes a radial distance from the point of minimum thickness of the
cladding plate; and

wherein D denotes a distance of the microwave antenna from the cladding plate.

23. (New) The antenna assembly of claim 22 the distance D is approximately 10 to 20 wavelengths of a radio signal emitted or received by the antenna.